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The Distributional Effects of Unemployment Insurance

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THE DISTRIBUTIONAL EFFECTS OF UNEMPLOYMENT INSURANCE

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INTRODUCTION

On the surface, Unemployment Insurance (UI) appears to have a significant impact on the distribution of income. In fiscal 1976, payments under all unemployment compensation programs totaled close to $20 billion, more than the combined payments under Aid to Families with Dependent Children (AFDC) and the Food Stamp program. * Moreover, UI provides benefits to those who have lost their labor income, and labor income is the major determinant of the income distribution in the United States.

The reality behind this appearance is the subject of this paper. Using several sources of data we find that although low income families get very little in the way of UI benefits, their share of UI benefits is greater than their share of income from other sources. Thus, based on the distribution of benefits, UI appears to equalize income.

The distribution of UI benefits is, however, only part of the story. The net impact of the UI program on the distribution of income depends on not only who gets UI but also who pays for it. We present evidence that wages adjust, at least to some extent, to levels of unemployment insurance. If wages do fall when UI is increased, this market adjustment mitigates the equalizing effect of UI receipts.

Aside from the direct effect of UI on the income of the unemployed, UI is believed to have a counter-cyclical effect which, if true, would have important distributional implications. If UI really does lessen the severity of recessions, it will increase the equality of income because lower income groups suffer the biggest loss in income during a recession. ** UI benefit payments do exceed tax collections in a recession, and vice-versa in a boom period. In this sense UI is counter-cyclical. But for UI to be counter-cyclical in the sense that it alters the severity of recessions, it must alter the expenditure patterns of the unemployed. We present evidence in this paper that UI does not alter the expenditures of the unemployed; UI appears to have a larger impact on savings patterns. Again, as in the case of the direct effect of UI, we find that there are long-run mechanisms which offset the apparent counter-cyclical effects of UI.

WHO GETS UI?

Eligibility for UI is determined by previous work experience. All states require some minimum level of earnings previous to unemployment before any benefits are paid,

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*There are several unemployment compensation programs: regular state UI; federal-state extended programs (EB, FSB); unemployment compensation for federal employees (UCFE); unemployment compensation for ex-military employees (UCX); federal coverage of workers not covered under other programs, (SUA); disaster unemployment assistance; Trade Adjustment Assistance (TAA); and railroad unemployment compensation. Total payments under major income transfer programs (1974-76) can be found in the Economic Report of the President, 1977 (table 22).

**See Gramlich [12].

and, in addition, many states require a minimum number of weeks or quarters of work.*
The purpose of these requirements is to screen out claimants with marginal attachment
to the labor force. Although it is doubtful that the minimum earning requirements, which
are now on the order of about $600 in most states, really do accomplish this objective,
they do screen out many of the poor because the poor are often those who never work.**
They are often sick or old or they are single parents of young children. Whether these
people would work if it were not for income transfer payments is not the issue here;
the point is that since UI goes to those who have worked, it will not do a great deal to
alleviate poverty. UI payments also do not go to those with high income, for two reasons:
first, payments are contingent on unemployment and unemployment leads, at least tem-
porarily, to reduced income. Second, high income workers are less likely to become un-
employed because the incidence of unemployment falls as skill and tenure increase.

Table I shows the proportion of families in each income group who reported receiv-
ing UI benefits in 1972 in the March 1973 Current Population Survey (CPS). The numbers
in the table understate the proportion actually receiving benefits because the CPS, which
is the household survey used to generate nationwide unemployment statistics, suffers
from an underreporting bias with respect to UI.*** If we assume that the amount of
underreporting is not a function of income, then table I implies that there are differences
in the relative probability of receiving UI across income groups: very low income fami-
lies (<$3,000 per year) rarely received UI, and middle income families were about twice
as likely to receive UI as families in the highest income bracket.

Table II reports unemployment and the receipt of UI for one type of family. It shows
that although middle income families were more likely to receive UI than high income
families (column 2), the probability that a spell of unemployment was compensated by UI
increased with income (column 3). For these couples, UI receipt was least likely in the
lowest and highest income groups. The incidence of UI, given unemployment, increases
with income. The incidence of unemployment and UI receipt was tabulated by income
group for every family type and the patterns were the same as those shown in table II;
they did not depend on the presence of a spouse or children.****

The pattern of UI receipt may be partially explained by the fact that higher income
families are more likely to meet the monetary eligibility requirements for UI, but it is
primarily due to the differing causes of unemployment in the various income groups.
Income tends to increase with age, so higher income households generally consist of
older workers. Job loss among older workers is more likely to be involuntary than

*For a concise list of state UI provisions, see [22].
**See Palmer [18].
***See Classen [5] and Feldstein [9].
****An aggregation of all family types is misleading since the number of family members
who work affects both the income of the family and the probability that at least one member
will experience unemployment.

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TABLE I

REPORTED INCIDENCE OF UI RECEIPT (1972)

FAMILY INCOME	PERCENT OF FAMILIES RECEIVING UI
$0-1000	1.0
1001-2000	1.6
2001-3000	2.6
3001-4000	5.0
4001-5000	6.2
5001-7500	6.5
7501-10,000	7.3
10,001-15,000	6.7
15,001-20,000	6.2
> 20,000	3.6

Source: March 1973 CPS Tapes

TABLE II

REPORTED INCIDENCE OF UNEMPLOYMENT AND RECEIPT OF UI (1972)
(Family type: Married couples - Both working - No children)

Income	Percent of families where either husband or wife experienced unemployment	Percent of families where either husband or wife received unemployment compensation	Probability that unemployment was compensated by UI
	(1)	(2)	(2 ÷ 1)
$0-1000	45.4	0	0
1001-2000	43.3	0	0
2001-3000	44.7	2.1	.048
3001-4000	32.2	10.0	.310
4001-5000	41.6	8.8	.210
5001-7500	28.9	9.4	.324
7501-10,000	28.3	12.4	.441
10,001-15,000	21.0	8.3	.398
15,001-20,000	12.1	8.3	.686
> 20,000	7.2	5.2	.723

Source: March 1973 CPS Tapes

among younger workers, and of course the young are more likely to be new entrants into the labor force. Although a few states pay benefits to those who voluntarily leave their jobs, after a waiting period, none provide benefits to new entrants or re-entrants to the job market who are unemployed while they search for work. The vast majority of UI recipients are temporarily unemployed victims of involuntary job loss. Among the unemployed, then, the older, higher income workers are more likely to qualify for UI.*

To check the distributional patterns of UI receipts against the patterns apparent in the CPS data, a random (6 percent) sample of claim histories and employer tax records in Pennsylvania were tabulated for individuals covered by UI. UI records are extremely accurate. They do not, however, cover people who never work, and since the unit of observation is the individual and not the family, these tabulations are not directly comparable to those shown in tables I and II.

Table III shows the distribution of all workers covered by the UI system and the distribution of claimants in Pennsylvania in 1967. The fraction of workers who collected UI is higher in this sample than it is for CPS families, but the general pattern is the same: middle income workers make up a disproportionate share of UI recipients.

UI records have another advantage aside from their accuracy: they allow us to examine the earnings of UI recipients in the year before they become unemployed. Compare the first and last columns of table III. Note that the low income groups show a substantial drop in earnings, probably because they contain workers who dropped out of the labor force in 1967. Except for those groups, unemployment does not appear to result in an income change for most workers even though the average duration of unemployment was over two months. Average incomes don't change much over the two years because many of the 1967 claimants were also unemployed in 1966. Some UI claimants collect benefits year after year.

Three years of claimant files in Pennsylvania were merged (1966, 1967, 1968) to allow analysis of repeat collection patterns. Over half the people who had a valid claim for unemployment insurance in 1968 also claimed in 1967 or 1966, and over 20 percent had claims in all three years. It seems reasonable to assume that for people who collect benefits year after year, unemployment does not really constitute a risk; it is a predictable event. For such workers, UI is not really an insurance program; it is part of the wage package.

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*The distribution of total unemployment by age (see the yearly Work Experience of the Population, BLS) always has a larger fraction in the young groups than the distribution of UI recipients by age (see the monthly Unemployment Insurance Statistics, ETA).

TABLE III

DISTRIBUTION OF WORKERS AND
CLAIMANTS

Pennsylvania - 1967

Annual earnings in covered employment--1967	All workers (percent)	Eligible claimants[a] (percent)	Claimants as a percent of covered workers	Average income of 1967 claimants in 1966
Total	100.0	100.0	7.9	
< $360	11.5	6.9	4.8	$3312
360-999	10.7	4.5	3.3	2198
1000-1999	11.0	13.8	9.9	2386
2000-2999	9.0	20.9	18.3	2653
3000-4999	18.1	29.4	12.8	3923
5000-6999	16.5	14.2	6.7	5860
≥ 7000	23.2	10.3	3.5	8270

[a] Those who filed and met minimum earnings requirements.

Source: Pennsylvania Continuous Wage and Benefit History Tapes

HOW MUCH UI?

Thus far, we have described only the likelihood that any UI is received. The amount of benefits that each worker gets will also affect the distribution of income.

In general, UI pays half of a claimant's previous wage up to a maximum amount. Because of this ceiling, high wage earners receive less than half their previous wage. Since high wage earners seldom claim UI, the average replacement rate for UI claimants is close to 50 percent. But, a dollar in UI benefits is worth more than a dollar in wages because UI is tax-free. UI as a fraction of net wages (wages minus taxes) usually averages about two-thirds for the claimant population. *

Table IV gives one calculation, based on work done by Martin Feldstein, of the distribution of UI payments in 1970. It shows that the distribution of the amount of UI collected by income group is very similar to the distribution of the number of UI recipients

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*See Unemployment Compensation: A Background Report, Congressional Budget Office [6].

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by income group. * The bottom half of the income distribution has less than half the recipients and it receives less than half the benefits. Although UI payments are not distributed proportionately across all income classes, they are distributed much more equally than income. Without considering who pays for UI, it appears that UI increases the equality of the income distribution in the U.S. **

TABLE IV

DISTRIBUTION OF UI
1970

Family income without UI	% Distribution of families	% Distribution of UI Recipients	% Distribution of UI payments	% Distribution of money income
$0 to 4,999	28	18	17	7
5,000 to 9,999	25	30	31	22
10,000 to 14,999	18	25	24	27
15,000 +	29	27	28	44
	100	100	100	100

Source: Calculated from Table II in "Unemployment Compensation: Adverse Incentives and Distributional Anomalies," by Martin Feldstein and the Statistical Abstract of the United States: 1972.

WHO PAYS FOR UI?

The UI Tax System

For most of its 42-year history, the UI system in the United States has paid UI benefits through a tax on employers. *** On the first $4,200 of each employee's wages, an

*The distribution of UI payments by income group was also equal to the distribution of UI recipients by income group in the Pennsylvania data.

**Table IV is based on a 1974 paper by Feldstein [9]. In this paper he used CPS responses, which were adjusted for underreporting by an imputation system developed at Brookings. In a 1977 paper [11], Feldstein uses the CPS and State UI provisions to estimate the actual receipt of benefits. These later estimates show a higher fraction of benefits going to lower income groups.

***The recent recession, however, is a significant exception. Many state funds and the federal unemployment tax accounts were entirely depleted. Loans to finance regular benefits and extended benefits were financed from general revenues. The liability for these loans has not been decided. Benefits to previously uncovered workers (SUA) are completely financed from general revenues.

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employer pays .7 percent into the federal tax fund, which is used for loans to states and extended benefits, and an additional percentage into the state UI fund. The tax rate set by the state is based on the benefit collection experience of each firm. Employers with little turnover or few layoffs pay a low rate. All states, however, have a minimum and maximum tax rate; as a result, unstable employers, paying the maximum rate, consistently pay less in taxes than their employees receive in benefits, and very stable employers, paying at the minimum rate, pay more in taxes than their employees collect in benefits.

Although there is always variation in benefit payment experience within an industry, the industry to which a firm belongs is a good predictor of a firm's benefit to tax ratio in the state tax account. Construction firms are frequently responsible for benefit payments that are over twice their tax payments, while the finance industry, on the other hand, is usually responsible for benefits that equal only half the taxes it pays.*

Table V shows, for selected industries in Pennsylvania in 1967, that some industries accounted for a disproportionate share of UI claimants, that is, claimants in these industries exceed their proportion in the labor force. In addition, many of the same industries accounted for benefit payments in excess of taxes they paid. The outcome of these industry tax patterns is an interfirm subsidy, with stable firms subsidizing unstable firms. The effect is like a payroll tax on stable firms and a payroll subsidy for unstable firms, resulting in reduced equilibrium levels of employment in stable firms and increased employment in unstable firms. The distribution of income is probably not changed very much, but the interfirm subsidy does increase the level of unemployment since it shifts employment toward industries with frequent layoffs.**

Do Workers Pay for UI Benefits?

A key question in determining the net effect of UI on the distribution of income is whether workers pay for UI benefits in the form of lower wages. For some workers, unemployment is a predictable event that occurs every year. For these workers, UI may become part of the wage package. If a wage adjustment does occur, then the distribution of income will be largely the same with or without UI benefits, and much of the limited equalizing effect shown earlier will be illusory.

The hypothesis that the availability of UI lowers wages can be tested using wage data from the construction industry. Although UI is very important in the construction industry, its relative importance varies by region and by craft. Weather is a primary cause of seasonal fluctuations in construction employment and inclement weather, particularly freezing temperatures, occurs more often in some parts of the country than in others.

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*See Becker [2].

**See Chiswick [4] for an estimate of the effects of the 1974 extension of UI to agriculture. Chiswick found that the introduction of UI resulted in more employees in agriculture in the usual seasons of work and more unemployment in the off-season.

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TABLE V

DISTRIBUTION OF COVERED WORKERS, CLAIMANTS AND
EXHAUSTEES BY INDUSTRY OF PRINCIPAL EMPLOYMENT,
AND INDUSTRY BENEFIT/TAX RATIOS
(Pennsylvania 1967)

Industry	UI Covered Workers %	Claimants %	Exhaustees %	Benefit/Tax Ratios Average for 1957-67
Total - All Industries	100.0	100.0	100.0	88.4
Manufacturing	43.9	63.0	46.8	88.5
Durable Goods	25.5	28.7	28.5	n.a.
Lumber & Furniture	1.1	1.6	2.7	90.1[a]/
Stone, Clay & Glass Prod.	1.9	2.4	1.6	n.a.
Primary Metals	7.0	7.3	3.2	97.9
Fabricated Metal Prod.	2.9	3.5	3.2	n.a.
Nonelectrical Machinery	3.3	2.2	3.2	n.a.
Electrical Machinery	4.4	6.2	8.6	50.1[b]/
Transportation Equipment	2.7	3.4	3.8	72.9
Other Durable Goods	2.2	2.1	2.2	n.a.
Nondurable Goods	18.4	34.3	18.3	n.a.
Food & Kindred Prod.	3.4	3.6	4.3	n.a.
Textile Mill Prod.	2.0	3.6	0.5	130.4
Apparel & Related Prod.	5.2	20.3	5.4	116.0
Paper & Printing	3.2	1.7	4.3	41.9[c]/
Chemicals, Pet. & Coal	2.3	1.3	2.2	55.0[d]/
Other Nondurable Goods	2.3	3.8	1.6	n.a.
Nonmanufacturing	56.1	37.0	53.2	n.a.
Mining	1.0	1.8	2.1	324.2
Contract Construction	5.7	11.8	9.1	159.1
Transp. & Pub. Util.	5.9	3.6	2.7	53.2
Wholesale & Retail Trade	25.9	11.8	19.9	84.0
Fin., Ins. & Real Estate	4.9	1.3	3.8	35.7
Service & Miscellaneous	12.7	6.7	15.6	69.6

n.a. - not available
a/ - Furniture only   (SIC 25)
b/ - average for 1960-1967 only
c/ - Printing only   (SIC 25)
d/ - Chemicals only   (SIC 28)

Source: Pennsylvania Continuous Wage and Benefit History Tapes and
Experience Rating in Unemployment Insurance, Joseph Becker
(Appendix A).

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The seasonality of employment in construction is much less pronounced in the South than in the North. Cold weather does not, however, affect all construction equally: primarily indoor crafts, such as electrical work, are much less seasonal than outdoor crafts, such as carpentry.* Seventy percent of the electricians surveyed in the 1960 U.S. census reported 50 or more weeks of employment while only 40 percent of the carpenters had 50 or more weeks of work.**

Unemployment insurance also differs markedly across the country since each state can set its own UI benefit levels within very broad federal guidelines. The difference in UI levels across states can be attributed to two factors: first, although all states pay benefits approximately equal to one-half of a worker's previous wages up to a maximum amount, the maximum, which applies to the vast majority of union construction workers, differs considerably from state to state; second, some states pay an extra amount for dependents, while others do not.

If workers do pay for UI in the form of lower wages we expect that, holding constant other factors that determine wages, wages would be lower in areas where UI was more generous. We also expect that holding UI and other factors constant, wages would be higher in areas where unemployment is more likely, because workers must be paid higher wages to attract them to jobs that have frequent or long layoffs. These two expected relationships are not really separate; they are both products of the view that workers demand extra remuneration for unpleasant aspects of a job.

It is safe to assume that construction workers are better off when they have more employment opportunities since they can reject offers when they feel overworked. Thus, a career that offers few employment opportunities is undesirable relative to a career that offers frequent opportunities, and pay in the career with few opportunities must compensate for this unattractive feature. This higher pay can take two forms: higher wages during work periods, or unemployment insurance to cover periods when there is no work. Both higher wages and UI lessen the relative unattractiveness of an unstable job. In this sense, higher wages and UI are substitutes; wages should be higher in unstable jobs when UI is low, and if UI levels are held constant, wages should be higher, the fewer days of expected employment.

To determine the effect of job instability on wages, an equation was estimated in which the relative wages of carpenters and electricians were assumed to depend on the

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*See "Seasonality and Manpower in Construction" (U.S. Dept. of Labor), 1970. Becker [2] gives benefit/tax ratios for several types of special construction trade contractors in Massachusetts and New York (table A-9). Electrical contractors had benefit/cost ratios in 1967 of 31.8 in Massachusetts and 54.6 in New York. Carpentry contractors, on the other hand, had ratios equal to 141.8 in Massachusetts and 135.5 in New York.
**Occupational Characteristics - Final Report, PC(2) - 7A.

expected loss of employment due to cold weather, the level of UI benefits, and licensing restrictions:

$$\frac{\text{CARPENTERS' WAGES}_i}{\text{ELECTRICIANS' WAGES}_i} = b_0 + b_1 (\text{FREEZING DAYS}_i) + b_2 (\text{REAL UI}_i)$$

$$+ b_3 (\text{LICENSING LAWS})$$

where

WAGES_i	= Union hourly wages for carpenters and electricians in metropolitan area i. (Source: BLS Special Survey in late 1965 and early 1966. Results reported in [8].)
FREEZING DAYS_i	= The average number of days in metropolitan area i when minimum temperature has been 32° or less. (U.S. Dept. of Commerce [20].)
REAL UI_i	= The maximum amount of weekly benefits allowed in metropolitan area i. Assumes two dependents. Dollar value of UI is divided by average wage of electricians and carpenters to adjust for differences in area price levels. (Source: U.S. Dept. of Labor, "Significant *Provisions of State Unemployment Insurance Laws*" [22]. 1966.)
LICENSING LAWS	= 1 if the state licenses journeymen electricians; otherwise 0. (Source: "Summary of Major Provisions of Electrical Code, Licensing and Enforcement Statutes..." [16].)

The estimated equation is based on data from 48 metropolitan areas which cover all geographic areas in the United States.*

Relative wages were used as the dependent variable to abstract from most of the factors that determine geographic wage differences.** Whatever these geographic factors are, they should, for the most part, affect carpenters and electricians equally, since each observation of carpenters' and electricians' wages is from a single metropolitan area. We hypothesize that area to area variation in the remaining three factors, cold weather, UI, and licensing, will cause the ratio of carpenters' to electricians' wages to vary.

Since cold weather limits the employment of carpenters more than electricians, electricians have much more stable employment. Thus, if there are compensating stability differentials, carpenters should receive higher pay, relative to electricians,

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*Two multi-state metropolitan areas were excluded because there is no way to determine the level of UI for these areas.

**For example, unionization could cause bias if wages in a single craft were used as the dependent variable because the South is not very unionized and it has little cold weather. Since there are no good measures of the degree of unionization, the cold weather variable could easily pick up the effects of unionization on wages.

in areas that have many cold spells. In the equation, this means that the estimated co-efficient b_1 should be positive. If UI acts as a substitute for compensating wage differ-entials, then carpenters will receive lower relative wages where UI is higher, holding the number of freezing days constant, because UI is more valuable to the more frequently unemployed carpenters. Thus, the estimated b_2 coefficient will be negative. The licensing variable is included to capture the effect of restricted entry into the electrical trades caused by licensing laws. Seven of the metropolitan areas were in states that licensed electricians, but no state licensed carpenters at the time of the wage survey. Thus, the expected sign of b_3 is negative.

The results, shown in table VI, indicate that although licensing doesn't seem to affect relative wages, there are compensating wage differentials for risk of unemploy-ment, and UI acts as a substitute for these differentials.

To the extent that UI and wages are substitute elements in the remuneration package, UI will not alter the distribution of total income. It will, however, increase the inequality of wage income since middle income workers, who are most likely to receive UI, will pay for it in the form of lower wages.

Combined Effects of the Interfirm Subsidy and Wage Displacement

The two preceding sections of this paper have shown that UI creates an interfirm subsidy from stable to unstable firms and that there is evidence that UI displaces wages. We can integrate these two sections if we examine the effects of UI on a stable industry and on an unstable industry. For the sake of convenience, assume that all firms pay the same tax rate, independent of their past unemployment experience.

Figure 1a shows supply and demand curves for labor in a stable industry, both when UI is available and when it is not. Figure 1b shows similar curves for an unstable in-dustry. The subscript UI refers to the case where UI is available.

Without UI, the wage (W) in the unstable industry must be higher than in the stable industry to compensate for the higher probability of unemployment. When UI is intro-duced, the labor supply curves will shift out. The vertical distance between the supply curves with and without UI is the expected level of benefits per employee.* The shift in supply is greater for the unstable industry because UI is not very valuable to workers who aren't unemployed very often. If each industry pays the same tax rate, the stable industry will pay more than its share of taxes and the unstable will pay less than its share. The demand curves will shift down by the same amount for each industry because the marginal cost of each employee has gone up the same amount. Each demand curve shifts down by the UI tax levied per employee. The net result is that employment goes up in the unstable industry and down in the stable industry.

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*For simplicity, we assume that workers are risk-neutral; that is, they do not prefer a certain outcome to an uncertain outcome with the same expected value.

TABLE VI

RELATIVE WAGE EQUATION

$$\text{Dependent Variable} = \frac{\text{CARPENTERS' WAGE}}{\text{ELECTRICIANS' WAGE}}$$

INDEPENDENT VARIABLES		COEFFICIENT	t-STATISTICS
Freezing Days	(b_1)	.0004	1.96
Real UI	(b_2)	-.014	-2.16
Licensing Laws	(b_3)	.012	.50
Constant	(b_0)	1.02	16.29

$R^2 = .13$

$F (3/44) = 2.15$

Note that wages go down in both industries, but wages go down more in the unstable industry because of the greater shift in the supply curve. Total expected pay goes up to W^* in the unstable industry because the worker gets W_{UI} in wages and the amount from A to C in expected benefits. The portion of benefits paid by the unstable firm is the smaller amount from A to B. The total pay of workers remaining in the stable firm falls from $\overline{W}$ to W^* with the introduction of UI and stable firms pay more in benefits per employee $(\overline{B}-\overline{A})$ than their employees receive in benefits $(\overline{C}-\overline{A})$. Thus, some workers may receive increases in total compensation, not because of the UI system but because of the way the UI system is financed. This subsidy element of UI could increase the equality of the income distribution, but many of the workers in notoriously unstable firms -- construction workers and actors for example -- would not have low incomes in the absence of any UI program.
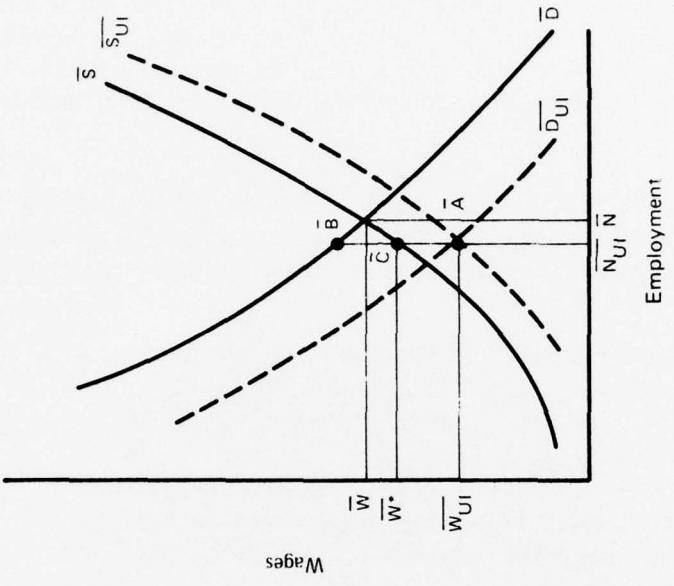
FIG. 1a: UNSTABLE INDUSTRY

FIG. 1b: STABLE INDUSTRY

FIG. 1: EQUILIBRIUM WAGES AND EMPLOYMENT WITH AND WITHOUT UI

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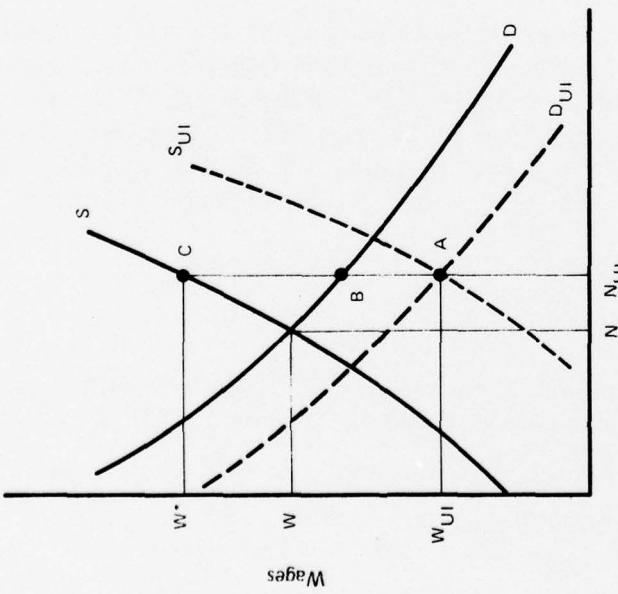
THE EFFECTS OF UI ON BUSINESS CYCLES: UI AS A COUNTER-CYCLICAL TOOL

Many people who have studied UI feel that it produces a number of very troublesome incentives: higher benefits encourage workers to increase the duration of unemployment; the tax-free nature of benefits increases the reliance of employers on layoffs as an adjustment to changes in demand rather than price or inventory adjustments; and, as we have already mentioned, the interfirm subsidy increases employment in firms with more frequent layoffs.*

Despite these effects, UI is often considered an indispensible program because it is believed to have counter-cyclical power. The opening paragraph on unemployment compensation from the 1976 Economic Report of the President summarizes this belief very well:

> The recession of 1974-75 has again demonstrated
> that the unemployment compensation system is
> one of our most important counter-cyclical tools.
> As workers are placed on a layoff, benefits begin
> immediately ....This provision of purchasing power
> to the unemployed is of substantial importance in
> promoting economic recovery ....(p. 106).

Figure 2 shows the ratio of benefit payments to taxes since 1947. It also shows the unemployment rate for all workers. Benefit payments do exceed taxes during recessions and taxes exceed benefit payments during booms. In this sense, UI is counter-cyclical. But whether or not it is counter-cyclical in the sense that UI lessens the severity of recessions is an entirely different matter. UI can lessen the severity of recessions only if it increases the spending of recipients. Let E_t be expenditures at time t . Then

$$E_t = UI_t + DISSAVING_t + OTHER\ INCOME_t$$

Expenditures can come from UI, from savings, or from current income. If UI is counter-cyclical, then an increase in UI_t should increase E_t. If, on the other hand, an increase in UI_t simply substitutes for dissaving, expenditures will not increase and UI will not have a counter-cyclical effect.

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*There are many studies of the effects of UI on the duration of unemployment. See, for instance, [14]. Martin Feldstein is the best-known exponent of the view that firms alter their layoff behavior because of UI. See [10].

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Sources: Benefit outlays   — *Survey of Current Business* (Table 2.1)
           Tax receipts   — *Survey of Current Business* (Table 3.11)
           Sum of employer contributions (state and federal) plus personal contributions
           Unemployment Rate — *Economic Report of President*, January 1977 (Table B.29)
           Troughs   — National Bureau of Economic Research
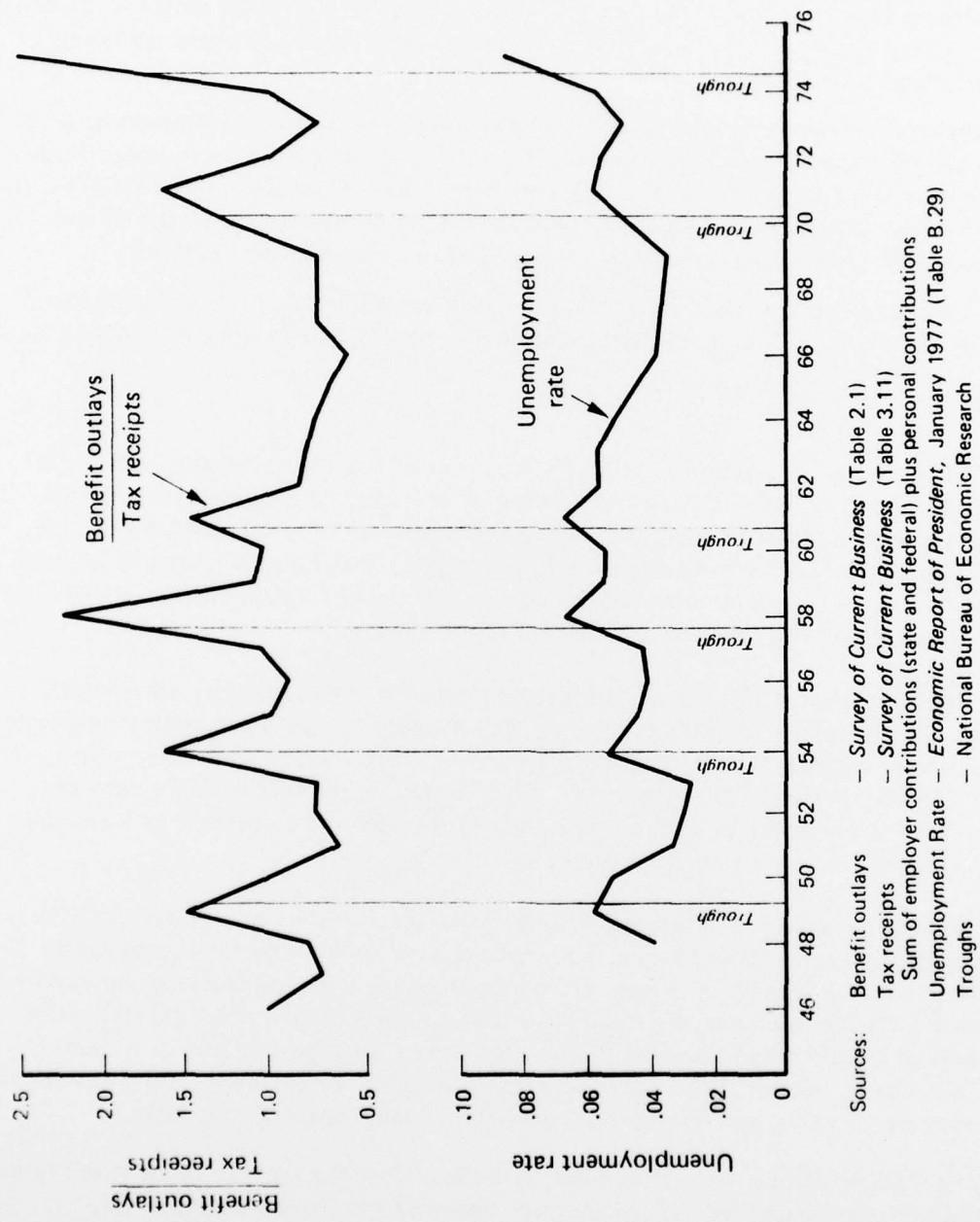
FIG. 2: UI OUTLAYS AND RECEIPTS OVER THE CYCLE

Joseph Becker [1] in a review of six studies of the adequacy of UI benefits, examined the expenditure patterns of UI recipients in a recessionary period in the late 1950s. Table VII, drawn from his work, summarizes the findings of these six studies. It shows that unemployment does not result in a large drop in expenditures because spending is maintained through dissaving.

More important is that the rate of dissaving during unemployment (column 4) is sensitive to the UI replacement rate (column 1), but total expenditures are not. Since UI is part of income, column 4 could be negatively related to the level of UI (column 1), even though UI had no effect on dissaving, because UI enters the denominator of the dissaving rate. The dissaving rate is $(E_u - I_u)/I_u$ where I is income, E is expenditures and the subscript u refers to the period of unemployment. We multiplied the dissaving rate by I_u/I_{u-1} to get a dissaving measure that was free from obvious bias. The adjusted dissaving measure is $(E_u - I_u)/I_{u-1}$.*

Table VIII presents a more formal statistical test of the relationships between UI and expenditures, and between UI and dissaving. The change in expenditures (column 3 of table VII) and adjusted dissavings were each regressed on the UI replacement rate and a set of dummy variables to control for family type. The relation between expenditure changes and the UI replacement rate is very weak and not statistically distinguishable from zero. In contrast, UI does have an effect on dissaving.**

It is really not surprising that UI affects dissaving because, if there were no UI benefits available, families would save more, specifically to cover expenditures during periods of unemployment. The net effect of UI is to change saving rates over time rather than to change expenditure patterns. This change in private savings patterns offsets the effect of government deficits in a recession; federal collection and disbursement of taxes substitutes for private saving.***

The effect of UI on wages, discussed in the previous section, and effect of UI on savings and expenditures, discussed in this section, are shown diagrammatically in figure 3. Wages are lower when benefits are available because the worker can expect to draw benefits during unemployment. These lower wages do not alter expenditures during periods of employment because the worker saves less for periods of unemployment. Similarly, expenditures are the same during unemployment with and without UI; it is dissaving that is reduced when unemployment insurance is available.

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*A necessary assumption to make this calculation was that the income from other family members did not change during the period that the beneficiary was unemployed.
**When the dissaving rate is regressed on the UI replacement rate (column 1), the coefficient is -.80, with a t-statistic of (-3.03).
***Similar reasoning leads to the belief that Social Security substitutes for private saving. Darby reviews and extends the literature on this topic in [7].

TABLE VII

ASPECTS OF BENEFICIARY EXPERIENCE SELECTED
FROM SIX BENEFIT-ADEQUACY SURVEYS,

1956-1958

Survey site and family status of beneficiaries	(1) Average benefits as a percent of average net wage[a]	(2) Beneficiary net wage as a percent of net family income	(3) Percent change in expenditures from recent period of employment	(4) Percent that expenditures exceed income
Tampa, Florida ('56)				
Single	46	96	-7	40
Primary	34	91	-5	57
Secondary	27	71	-4	19
Anderson, S.C. ('57)				
Single	56	92	-16	29
Primary	45	77	-10	30
Secondary	53	39	-4	13
Albany, N.Y. ('57)				
Single	54	90	+6	42
Primary	45	80	-10	45
Secondary	62	36	+10	23
Portland, Ore. ('58)				
Single	58	91	-15	28
Primary (1 earner)	45	88	-25	39
Primary (2 earners)	48	67	-18	33
Secondary	58	34	-9	16
St. Louis, Mo. ('58)				
Single	48	94	-17	42
Primary (1 earner)	38	83	-20	43
Primary (2 earners)	42	65	-19	18
Secondary	50	38	-9	12
Utica, N.Y. ('58)				
Single	63	89	-15	10
Primary (1 earner)	57	82	-9	16
Primary (2 earners)	57	59	-4	10
Secondary	65	34	-7	2

a/ - net means gross minus Social Security and income taxes

Source: In Aid of the Unemployed, Edited by Joseph M. Becker
         (Table 5-2)

TABLE VIII

EXPENDITURE AND DISSAVING EQUATIONS
(t-statistics in parentheses)

Dependent Variables =	ΔExpenditures	Adjusted Dissavings
Independent Variable		
UI Replacement Rate	.09 (.45)	-.23 (-1.94)
Family Type		
Single	1.90 (.42)	2.33 (.69)
Secondary Worker	8.8 (2.02)	-4.72 (-2.01)
Constant	-17.43 (-1.85)	27.37 (3.87)
R^2	.10	.30
F(3/17)	1.81	2.62

Thus, it appears that the counter-cyclical potential of UI may be illusory. Claims that the system is counter-cyclical have focused on benefit payments and taxes over the cycle and have assumed, or calculated with a Keynesian-multiplier model, that benefits increase national income if they increase the government deficit in a recession.* As we have seen, this need not be the case when actual periods of unemployment are not much longer than anticipated unemployment. In very deep recessions, when unemployment is much greater than expected, savings may not be great enough to finance desired expenditures. It is during these periods that UI may play an important, but as yet undocumented, role in stabilizing the economy.

Our simple test of the counter-cyclical power of UI is based on only a small amount of data and the results must be interpreted as preliminary. They do agree, however, with two earlier studies that have used a very different approach to measure the counter-cyclical impact of UI.

In his Ph.D. dissertation William Owen [17] tried to determine whether a state experiences a less severe decline in employment during a national downturn if it has generous unemployment benefits. He tested the counter-cyclical effectiveness of UI by regressing the 1954 and 1958 cyclical increases in each state's covered unemployment on a measure of the degree to which UI replaces lost wages in each state. Owen

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*For a review of these studies, see Hamermesh [13].
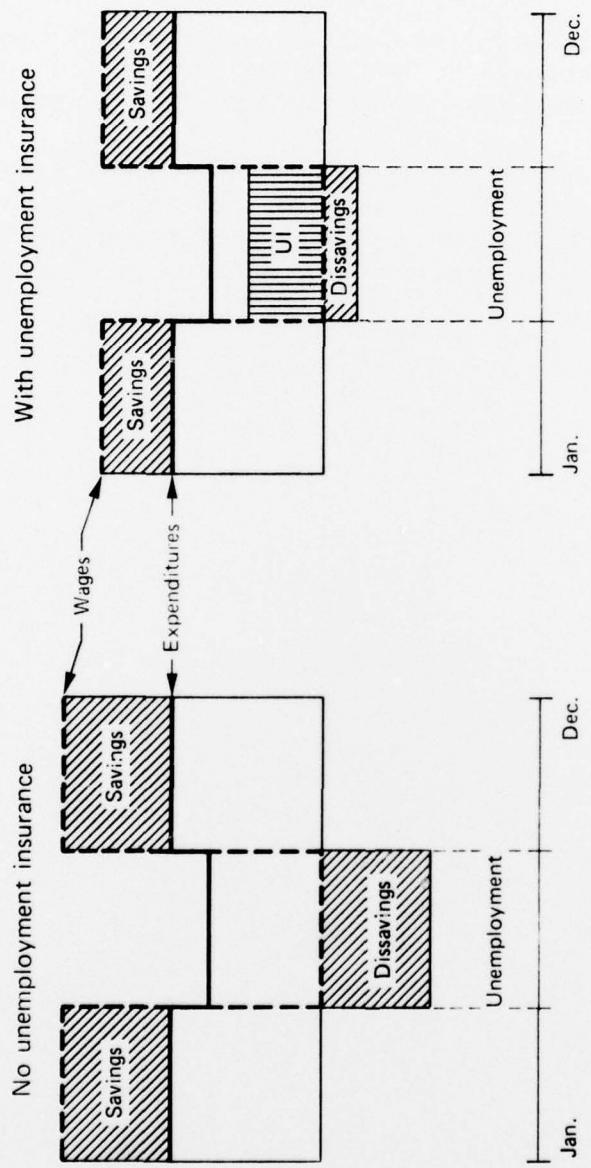
FIG. 3: WAGES, SAVINGS, AND EXPENDITURES WITH AND WITHOUT UI

found that states with higher benefits did not experience less severe recessions than those with low benefits. In fact, there seemed to be a positive relation between benefit levels and cyclical declines in a state.

In a later dissertation, Jerome Komisar [15] used a similar test to examine counter-cyclical effects in three recessions: 1954, 1958, and 1960-61. Again, the relationships between benefits and cyclical sensitivity seemed, if anything, to be positive.

The results of both these studies have been questioned because UI could be endogenous, that is, it may be states with a high degree of cyclical sensitivity legislate higher levels of UI. Until this "reverse casuality" argument is tackled and treated empirically, the results of studies like Komisar's and Owen's can be treated as only tentative evidence against the counter-cyclical power of UI.

CONCLUSION

Unemployment insurance could affect the distribution of income in two ways: by providing direct payments to the unemployed and by lessening the severity of recessions. At best, it appears that UI has only a modest potential for increasing the equality of income. The small equalizing effect of benefit payments to the unemployed is offset by lower wages for workers who are most likely to receive UI, and the counter-cyclical potential of UI is offset by adjustments in savings patterns.

Although at first glance it would seem that UI tends to equalize incomes in the short run, long run adjustments in wages and savings patterns offset its apparent effects on income and expenditures. This does not mean, however, that we can decrease UI without fear of adverse effects on the distribution of income or the level of national income. Many workers now expect to receive UI benefits when they are unemployed and they have decreased their savings accordingly. If UI payments were suddenly cut, those who expected UI payment might not have enough savings to finance desired expenditures and, therefore, an unexpected decrease in UI could cause a sharp reduction in expenditures and the kind of snowballing unemployment that occurs in Keynesian-multiplier models. Thus, even though market adjustments mitigate the distributional effects of UI, since these adjustments take time, a sudden decrease in UI could make matters worse than if there had neven been any UI.

We have found evidence that when workers expect UI payments, UI does not have an equalizing effect on income. Since UI was set up to be an enduring program, not subject to legislative whims, it is by nature a program that will produce the changes in expectations that mitigate the potential of UI to equalize income. The main purpose of UI is not, however, to equalize the distribution of income. but to provide payments, as a matter of right. not as a matter of need. to covered workers who are unemployed through no fault of their own. To the extent that UI accomplishes this main objective, it may be a desirable program even if it has no effect on the distribution of income.

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